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FINANCIAL ANALYSIS FOR FIVE DRILLING RIGS INVESTMENT TO SERVE PERTAMINA MARKET THROUGH JOINT OPERATION BETWEEN PTDU AND PDSI

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Abstract—*Indonesia in one of the largest oil producers in the world, its potential oil resources is stored beneath the belly of the earth of Indonesia; some are proven oil reserves but some still potential oil reserves. PERTAMINA as a state owned company have responsibilities to manage oil business industry in Indonesia, their country's potential oil resources need to be managed including oil exploration, oil drilling, oil refinery and any other process until the natural resources is ready to supply oil demand in all over the world. Scope of discussion of this research is limited into a narrower scope of oil drilling. PDSI (PT PERTAMINA Drilling Services Indonesia) is one of PERTAMINA's subsidiaries that operate in drilling rig business; PDSI also carrying same responsibilities like its parent company. PTDU (PT Dimas Utama) saw an opportunity to do joint operation with PDSI, because PTDU have resources of drilling rigs from Chinese investor. PTDU become like a bridge between Chinese Investor and PDSI, but the business scheme needs a financial engineering because Chinese investor wants a 200% return in year five which is normally made for more than five years. Therefore feasibility study is needed for this business scheme, decision tree analysis also used because there are possibilities and decisions on the business scheme. The results of the feasibility study are feasible IRR (Internal Rate of Return), ROI (Return on Investment), ROE (Return on Equity), PP (Payback Period), and NPV (Net Present Value), so PTDU should take this investment project.*
Keywords: drilling rig, financial analysis, PERTAMINA, PDSI, drilling services

I. INTRODUCTION

Oil industry in Indonesia is a promising sector of economy, considering Indonesia as an emerging country with a lot of potential natural resources includes oil. As a resource that has a great influence on people's need, government make a forward step to control this oil resources especially in Indonesia, therefore PERTAMINA is established. PERTAMINA have a subsidiary that have a scope of business of oil drilling rig, named PT PERTAMINA Drilling Services Indonesia (PDSI). PERTAMINA and PDSI cooperate to established oil refinery that can be benefited to develop oil industry in Indonesia. In present PDSI is a subsidiary, but in the past PDSI is not subsidiary of PERTAMINA, therefore PERTAMINA need to make a tender offer to drill oil from the belly of the earth and then refined it.

To be effective, PDSI is now becoming PERTAMINA subsidiary with no tender offer issued by PERTAMINA or in other words, PERTAMINA is a captive market for PDSI. As a parent company, PERTAMINA put targets for oil drilling projects done by PDSI, therefore PDSI need to make continuous development on their oil drilling projects or in other words, PDSI need to drill more oil rig. PT Dimas Utama (PTDU), a company in Indonesia that runs similar business like PDSI, sees an opportunity from the captive market of PDSI and the pressure of the targets from their parent company. PTDU plans to provide oil drilling rigs for PDSI, so PDSI can give benefit for its parent company. The advantage of PTDU is PTDU has a link to investor from China in order to provide PDSI with oil drilling rigs. PTDU plans to invest oil drilling rigs by making a contract with the Chinese investor, the investor from China will also consider this as an investment, and PTDU investment will be 5 rigs with a breakdown of 3 rigs each 1,500 HP and 2 rigs each 1,000 HP.

All investment costs are completely covered by the Chinese investor as their cost of investments and they will require the return of investment from PTDU. PTDU will then have an investment of five oil rigs that can be used for oil drilling projects; one of the projects is the opportunity from the PDSI mentioned before. When PTDU deal with

PDSI for the oil drilling projects, PTDU will also need to expense some cost of investment, and will require return from PDSI. PTDU will become like a bridge that connect PDSI with the Chinese investors. Business scheme will includes options of dry lease and wet lease of oil drilling rigs service. The deal also needs banks as their intermediaries in order to secure the payments.

II. BUSINESS ISSUES

For the purpose of this research, the business issues will be limited. This research will only discuss PTDU side of their feasibility study and the feasibility study will discuss about the investment of five drilling rigs done by PTDU with investor from China.

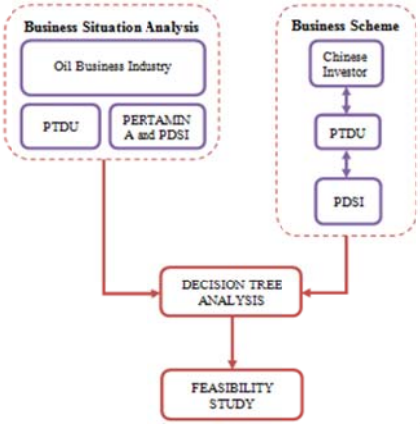
The deal with Chinese investor is not as smooth as it hoped; the Chinese investor expects higher return performance from their oil rig. They require around 200% return in five years. In the point of view of PTDU, the requirement of 200% in five years needs a special treatment of financing, because in the average oil drilling industry in Indonesia the 200% return is yielded in 20 to 25 years. PTDU come up with an idea of financial engineering named "balloon payment". This balloon payment is made by leveraging PTDU's equity by making debt in order to fulfill the requirement of 200% return in five years. This financial engineering will become the business issues of this paper. The business issues will discuss the feasibility study of provision of oil drilling rigs and feasibility study of strategic decision to leverage PTDU's equity

Purposes and Benefits

In brief PTDU become like a bridge for PDSI and Chinese investor, therefore this research will evaluate the feasibility study on both sides of PTDU deals. Evaluation of PTDU's feasibility study will cover the issue of drilling rigs provision to PDSI or any other future projects and financial engineering that made by PTDU to fulfill the requirement from Chinese investor. This evaluation will come up with the answer of the question is it feasible or not feasible. The outcome of this research evaluation will become a recommendation for PTDU decisions of their drilling rigs provision project.

III. BUSINESS ISSUE EXPLORATION

To understand this research business issues, conceptual framework is required before jump into the next sections and the next chapter of business solution. The conceptual framework act like maps to help readers explore the business issues continued to the business solution for the business problems.



Business Situation Analysis

Oil Business Industry

Oil and gas industry is a very important industry that could drive the economy of a nation. This industry creates a non-renewable energy sources which are petroleum fuels, and the fuel is being used by other industries in order to work, grow and strive. Therefore, this oil and gas industry takes control livelihoods in a country, based on the laws in Indonesia which is The 1945 Constitution Article 33:

1 *Perekonomian disusun sebagai usaha bersama berdasar atas azas kekeluargaan.*
2 *Cabang-cabang produksi yang penting bagi Negara dan yang menguasai hajat hidup orang banyak dikuasai hajat hidup orang banyak dikuasai oleh Negara*
3 *Bumi dan air dan kekayaan alam yang terkandung di dalamnya dikuasai oleh Negara dan dipergunakan untuk sebesar-besarnya kemakmuran rakyat.*

It is clear that if there is any production source that is important for Indonesia and takes controls over the livelihoods in Indonesia, it will be dominated by Indonesia itself. Therefore Indonesia established PERTAMINA on December 10, 1957 under the name PT PERMINA. In 1961 the company changed its name to PN PERMINA and after the merger with PN PERTAMINA in 1968 it became PN PERTAMINA. With the enactment of Law 8 of 1971 the company became PERTAMINA. This name persisted until after PERTAMINA changed its legal status to PT PERTAMINA (Persero) on October 9, 2003.

Indonesia is one of the largest oil producers in the world with a lot of potential natural resources beneath the belly of the earth of Indonesia, below are data of oil reserves in Indonesia recorded by Ditjen MIGAS (Direktorat Jenderal Minyak dan Gas Bumi):

Indonesia's oil reserves are a source of potential energy for the global world, especially for developed countries like the United States, China, and also emerging countries like India and Brazil. Based on research that is written by Haibo Wang from CNPC (China National Petroleum Corporation) Research Institute of Economics and Technology in Beijing, China, China's oil demand is very important in domestic energy strategy, which also attracts worldwide attentions. Based on historical analysis of Chinese oil consumption from 1980 to 2008, the author develops an econometric modeling – Medium & Long-term Chinese Oil Demand Forecast Model. Results shows that, Chinese oil demand will be 632 MT in 2020 without consideration of substitutions, and the annual growth rate will be 4.2%, much slower than before. The demand ratio of diesel to gasoline will decline, while kerosene demand will grow faster. If new energy vehicles (NGV and electric vehicles, etc.) develop rapidly and industrial fuel-oil demand is substituted effectively, about 23 million tons of oil could be saved.

Haibo Wang also concludes that fast growth of China's economy makes its oil consumption increases from 88 million tons in 1980 to 387 million tons in 2008, the annual growth rate is 5.45%. While the nominal GDP increase from 455 billion to 30 trillion RMB, and the annual growth rate of real GDP is as high as 9.9%. The average coefficient of elasticity of oil consumption to economic growth is 0.55. According to the analysis and forecasting described by Haibo Wang in his research, China's oil demand will keep increasing before 2020, and the annual growth rate is between 3.5% and 4.6%. In the BAU scenario China's oil demand is 632 million tons in 2020, which is 245 million tons larger than that of 2008. Even if considering effective substitution, China's oil demand in 2020 would be 600 million around, and it's the reasonable consequence of steady and rapid growth of social economy. Based on the assumption of 200 million tons of China's crude oil productivity, China's external dependence rate of oil supply will be 2/3 in 2020.

The example above is come from China, added by oil demands from other countries then PERTAMINA is having a good prospect of global oil demand. Therefore PERTAMINA want to take this momentum to build as many oil rigs as they can. PDSI as their subsidiaries also having a burden to fulfill oil drilling rigs target from their parent company to drill many potential oil reserves in Indonesia.

Business Scheme

PTDU with PDSI

PTDU saw an opportunity to cooperate with PDSI, PDSI is carrying the burden of their target from their parent company, they are required to build rig effectively and efficiently. PTDU able to help PDSI satisfy the requirement from PERTAMINA by investing oil rig from China and then help PDSI to drill oil field and make an oil rig. The option for PDSI to have a contract with PTDU is described below, based on Kieso, Weygandt, and Warfield (2011:1119-1134):

- Lease is a contractual agreement between a lessor and a lessee. This arrangement gives the lessee the right to use specific property, owned by the lessor, for an agreed period of time. In return for the use of the property, the lessee makes rental payments over the lease term to the lessor. In this research the lessor would be PTDU and the lessee would be PDSI. The lease agreement can be separated into two type of lease which are:
    1. Finance Lease, if any of below tests are met, the lease is considered a finance lease:
        a. ownership of the asset is transferred to the lessee at the end of the lease term;
        b. the lease contains a bargain purchase option to buy the equipment at less than fair market value;
        c. the lease term is for the major part of the economic life of the asset even if title is not transferred;
        d. at the inception of the lease the present value of the minimum lease payments amounts to at least substantially all of the fair value of the leased asset.
    2. Operating Lease, if any of the above tests is not met then the lease would be operating lease.

PTDU will require no transfer of ownership of their oil rig, they will only lease with the operating lease condition, so the only option for PDSI and PTDU is operating lease. There are no regulations for operating lease of oil rig in Indonesia, not like an aircraft operating lease in the United States. Nel Sanders (2001:1) describe aircraft operating lease in United States are regulated by the FAA (Federal

Aviation Administration) and in the Advisory Circular the operating lease can be separated into two types, wet lease and dry lease. Wet lease is a lease in which the lessor provides both the aircraft and the crew and leasing of an aircraft without crew is considered to be a dry lease and in both operating leases there are also have various type inside each. The concept of wet lease and dry lease of an aircraft is similar with the contract that will be used by PTDU to lease their oil rig to PDSI, but in Indonesia there are no regulations which regulate wet and dry lease of oil rig. Therefore the contract between PTDU and PDSI is based on their own agreement; the agreement is described with financial analysis at the same time in Business Solutions.

PTDU with Chinese Investor

Chinese investor required returns around 200% by the end of year 5. One oil rig required an investment of US$ 12,000,000 that is came from the price of one oil rig (US$10,000,000) plus the import tax, setup cost, and initial working capital which is 20% from the price of the oil rig (20% x US$10,000,000). The Chinese investor requires an interest of 6% per year from the outstanding principal of required payments which is US$60,000,000 that came from 5 oil rigs US$12,000,000 each. Before the deal come out with a done deal, PTDU negotiate the deal in order to have a grace period of six months to prepare the oil rigs and the installments for the second year. The grace period is considering PTDU not paying the installments and interests while in the grace period. Chinese investor had a hard negotiation and eventually the deal is done by agreeing PTDU grace period of 5 months with a condition of paying the first payment of the principal required payments US$1,000,000 (US$60,000,000 / 60 months) and the interest US$300,000 ((6%/12) x US$60,000,000). The installments that are deferred during the grace period of 5 months will be paid in the end of sixth month.

After all payments are made, in the end of fifth year the total payments will be US$69,200,000 and this total is not enough for the Chinese investor that required around 200% in the end of fifth year. PTDU made a deal with Chinese investor with total return of US$111,200,000 in the end of year 5. To reach US$111,200,000 PTDU need to do financial engineering on balloon payment in the end of the installment period, PTDU borrow money from the third party. Balloon payment is an oversized payment due at the end of a mortgage, commercial loan or other amortized loan. Because the entire loan amount is not amortized over the life of the loan, the remaining balance is due as a final repayment to the lender. The oversized payment in this case is US$42,000,000 and this amount is fulfilled by making leverage to third parties.

Decision Tree Analysis

The agreement on both sides between Chinese Investor with PTDU and between PTDU with PDSI is now clear. Another point of view of this case that needs to be considered is how the analysis will be done. The analysis of the case will use decision tree analysis because there are options for the contract lease agreement of dry lease and wet lease. So the decision tree analysis will firstly be divided into two decision nodes of dry lease and wet lease, after this division both decision will also be divided again unto three event node of optimistic, most likely, and pessimistic condition. Widjajono Partowidagdo (2002:129) explain decision tree as a schematic framework of condition and possibilities of results, the decision nodes represented by a square and the chance node represented by a circle.

There are only three chances on both decisions; these chances are driven by revenue of one oil rig per HP in one day, by making an interview with Financial and Accounting Director of PTDU, Mr. Imamat Dalimunthe and not only interview with Mr. Imamat but also information from PT PDSI and PT Deka Petrindo, revenue of oil drilling rig in one day can be between US$10HP – US$20/HP. So the pessimistic and optimistic point is known, it is US$10 for the pessimistic possibilities and US$ 20 for the optimistic possibilities. One that becomes a question is, in which price the most likely chance is? Since it has been explained in the subsection oil business industry in Indonesia in the beginning, oil consumption in the world is increasing and many potential oil reserves in Indonesia and also information from PDSI and PT Deka Petrindo, therefore $17/HP per day will be the most likely chances.

This three chances or estimates are approximation that is explained by Paul Goodwin and George Wright (2009:164). They said that the approximation is the extended Pearson-Tukey approximation; it is an approach proposed by Keefer and Bodily who found it to be a very good approximation to a wide range of continuous distribution. The value of $17 is continuous variables that is in between two variable of optimistic and pessimistic. Therefore decision tree analysis will be completed by the extended

Pearson-Tukey (EP-T) approximation in order to estimates the three possible chances, the estimation are:

1. Oil drilling rig revenue per day US$10/HP is allocated with probability of 0.1
2. Oil drilling rig revenue per day US$17/HP is allocated with probability of 0.7
3. Oil drilling rig revenue per day US$20/HP is allocated with probability of 0.2

IV. BUSINESS SOLUTION

Cashflow Projections

In this section of business solutions, the author will analyze the decision tree analysis explained in the previous chapter. Each branch of six possibilities in the decision tree will be analyze in order to have a final conclusion of which branch that will yield the most benefited decision. But it will firstly need cashflow projections that come from the five oil drilling rigs that is planned to be invested in PTDU by the Chinese Investor.

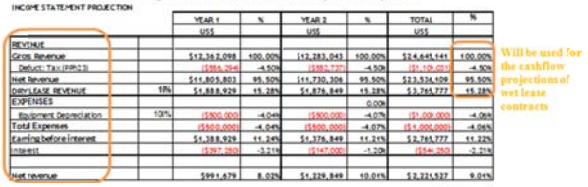
Before entering the financial review, the agreement of PTDU and PDSI will be described in order to understand clearly the difference about their agreement about the dry lease and wet lease.

- Wet lease contracts means PTDU plays a major role on the project, its revenues and expenses that will be used for the cashflow projection. PTDU pays for every expense that occurs for the project and amortizations / depreciations. Same like expenses, PTDU receive revenues that are yielded from the contract between PTDU and PDSI. Revenues are basically fixed because it is bond with contract agreement for a certain period of time. So the risk in the oil field is carried not by PTDU but by PDSI or PERTAMINA as a project manager. Oil drilling rigs investment is $60,000,000 with its interest of 6% per year, this investment from Chinese investor will be paid per year as oil rigs installments.
- Dry lease, similar with an aircraft dry lease explained in chapter 2, PTDU only lease the equipment but operating expenses are covered by the user of drilling rigs which is PDSI. PTDU only pays for the depreciations and they only receive dry lease revenue from PDSI, but same like wet lease contracts, PTDU will cover the oil rig installments and its interest.

Next paragraphs will discuss about the financial review about the projects, started with the cashflow projections and then it will be ended up with a feasibility study also conclusion of which decision to choose, is it wet lease or dry lease? Together with the feasibility study the author will discuss the financial engineering issue that is raised because PTDU become a bridge that connects PDSI with the Chinese investor through balloon payment that will be covered by leveraging. For the simplification concern, value added tax is excluded and the only tax is income tax of article 23 (PPh 23).

The cashflow projections of a wet lease oil rigs per year data is given by PTDU from their unreleased documents. Figure below show the proportion from the total of two years revenue and expenses. The proportions and the accounts in the income statements can be used for the cashflow projections on five drilling rigs with wet lease decision in the decision tree explained before. But some proportions are not used, like proportions of equipment depreciation because per year the equipment depreciation that will be recorded is $3,000,000 with an assumed oil rig lifetime of 20 years. Information about oil rigs lifetime is based on the information given by PT Deka Petrindo and PDSI. Dry lease and wet lease decision will use the price of US$10/HP, US$17/HP and US$20/HP per day but the accounts will not be the same with the income statement projections. Based on the interview with Mr. Imamat Dalimunthe, EBITDA target for a dry lease are approximately 15% from the revenue, different from EBITDA target of wet lease which can be above 35% from the revenue. Total EBITDA is $14,007,952 (US$5,522,952 + US$1,000,000 + US$2,200,000 + $5,285,000) the proportions is 56.84% from the revenue.

Figure 3.2 Income Statement Projection Dry Lease



ease

Below is the cashflow projection of the dry lease decision with the target EBITDA 15% from gross revenue. Proportions in the figure below will also be used to do feasibility study on three dry lease possibilities.

Dry lease revenue is come from the 16% times net revenue that is earned by PDSI, in dry lease agreement there are no operating cost, advance payment amortization, and pre operating amortization. Oil rigs installments and its interest is recorded also same like in wet lease contract.

EBITDA of this dry lease contract is calculated similar like the wet lease agreement. EBITDA Proportion of 15.28% is yielded from the EBITDA $3,765,777 ($2,765,777 + $1,000,000) that is divided with the gross revenue $24,645,141.

Wet Lease Cashflow Projection

The proportions above combined with the data of revenue of an oil rig per day, and then the author can project cashflows that are needed for the feasibility study. Usually the cashflow projections will be projected in 5 years but in this case the income statement projections as the cashflow projections need to be extended. The reason is because this oil rig investment from the Chinese investor need to have a return around 200% in 5 years, this requirement is a balloon payment and need to do leveraging as described before in chapter 2. From the interview, return of 200% need a longer period of time which is more than 5 years, therefore the cashflow projections need to be extended to be 10 years. Revenue and operation cost is increasing each year because of the assumption of 5% annual inflation rate but amortization and depreciation expenses is not changing over years. Pre-operating amortization use the monetary amount that is come from the total proportion multiplied by gross revenues, this monetary amount constant for years, but the advanced payment amortization is just paid for the first year. This advanced payment amortization is related with the payment that is occurring because of oil rig drilling purposes in Indonesia. Operation cost are assumed to be rocketing in the year two similar with the two year data in the previous section and then increase steadily with 5% inflation rate. With this wet lease contract PTDU will be able to maintain their total EBITDA proportion compared with gross revenue which is above 40%, it is confirming what Mr. Imamat said. He said that for a normal wet lease contract, target EBITDA can be above 35%.

Figure 3.1 Income Statement Projection Wet Lease

INCOME STATEMENT PROJECTION	YEAR 1	%	YEAR 2	%	TOTAL	%
	US$		US$		US$	
REVENUE						
Operation Rig	$6,640,620	33.72%	$6,324,400	31.49%	$12,965,020	32.61%
Standby Rig	$268,787	2.17%	$268,787	2.19%	$537,574	2.18%
Moving Rig	$474,330	3.84%	$711,495	5.79%	$1,185,825	4.81%
Drilling Revenue	$7,383,737	59.73%	$7,304,682	59.47%	$14,688,419	59.60%
Other Services	$4,978,361	40.27%	$4,978,361	40.53%	$9,956,721	40.40%
Gross Revenue	$12,362,098	100.00%	$12,283,043	100.00%	$24,645,141	100.00%
Deduct Tax (PPh21)	($566,294)	-4.50%	($562,737)	-4.50%	($1,129,031)	-4.50%
Net Revenue	$11,805,803	95.50%	$11,730,306	95.50%	$23,536,109	95.50%
EXPENSES				0.00%		
Operating Cost - Monthly	($2,465,569)	-19.94%	($7,063,568)	-57.50%	($9,529,137)	-38.96%
Advance Payment Amortization	($5,285,000)	-42.75%	$0	0.00%	($5,285,000)	-21.44%
Pre Operating Amortization	($1,100,000)	-8.90%	($1,100,000)	-8.99%	($2,200,000)	-8.93%
Equipment Depreciation	($900,000)	-4.04%	($900,000)	-4.07%	($1,800,000)	-4.06%
Total Expenses	($9,350,569)	-75.64%	($8,663,568)	-70.53%	($18,013,137)	-73.09%
Earning before Interest	$2,455,234	19.86%	$3,067,738	24.98%	$5,522,952	22.41%
Interest	($397,290)	-3.21%	($147,000)	-1.20%	($544,290)	-2.21%
Net revenue	$2,057,984	16.65%	$2,920,738	23.78%	$4,978,702	20.20%

Will be used for the cashflow projections of wet lease contracts

Dry Lease Cashflow Projection

Dry lease contract is an easier contract for PTDU because no operation cost and amortization, also there is no advanced payment amortization that needs to be taken care of. PTDU in this dry lease contracts cover equipment depreciation, oil rigs installments and its interest, but for their revenue PTDU only receive yearly payment as dry lease revenue that is 16% of net revenue. With the 16% of net revenue from PDSI, PTDU can maintain their EBITDA up to 15% over years, and the table of the EBITDA proportions in three possibilities is shown below. The assumption of 5% inflation rate also used for this cashflow projection, but only revenues that is affected with this inflation rate in this contract and the equipment depreciation is constant over years.

Dry lease contracts is not a good choice, because PTDU is carrying oil rigs installments and their interests per year, it seems hard to have a positive net income with a 15% EBITDA. Therefore from the point of view of the bottom of 10 years cashflow projection which is net income, wet lease is a better choice for PTDU. It can be seen that the dry lease contract doesn't has positive net income on its possibilities, but for the wet lease contracts the net income projections seems promising. For most likely possibilities, positive net income starts at year six and its payback period (PP) is in year ten, pessimistic possibilities never yields positive net income, and optimistic possibilities starts its positive net income in year four; have PP in year seven. PP for three possibilities of wet lease contract is in year ten, the calculation is come from proportion of probability is multiplied by each net income per year per possibility, and then find PP from the value of net income. Decision tree on both cashflow projections with its total net income is shown below:

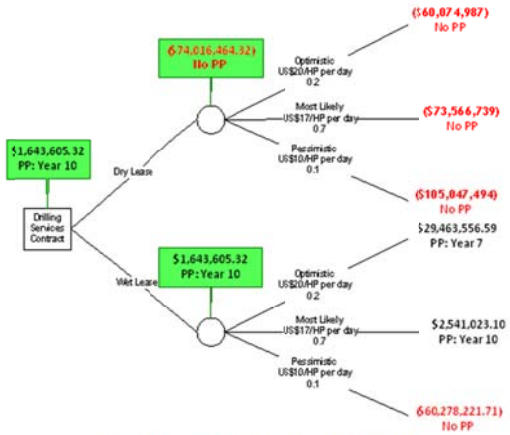


Figure 4. Decision Tree Analysis on Cashflow Projections

It can be seen from the figure that the decision of the lease contract is fell on the wet lease contract because wet lease contract yields a positive net income with PP in year ten. After this cashflow projection the author jump into the feasibility study to study about the project investment is it feasible or not or there is a special notes on the project. This feasibility study is needed before conclusion about the investment decision because decision can't be made based only on cashflow projections.

Feasibility Study

Feasibility starts with finding free cash flow (FCF), FCF in this final project is calculated based on the following formula:

change in net working capital is assumed not in the formula because this is a onetime project and no need to combined balance sheet from PTDU and create a projected balance sheet to find the change in net working capital. The investment project use debt $42,000,000 and investment from Chinese investor, which is debt for PTDU amounted $60,000,000. Because debt to third party is taken in the year sixth, $42,000,000 amount should be in present value, its present value is $28,584,494.28. Based on the interview, PTDU needs their own equity in meeting Chinese investor with PDSI and it amounted 10% from Chinese debt ($6,000,000).

It is also assumed that there is no retention for growth that is recorded in the equity. Feasibility study is also made for six possibilities in the decision tree analysis. For the final conclusion, decision tree figures will also depicted in order to understand from the point of view of feasibility study. After this, the best decision for PTDU can be concluded.

In calculating NPV it needs a discount factor for every free cashflow in order to get discounted free cashflow; the discount factor is obtained from the WACC (Weighted Average Cost of Capital). WACC formula adjusted in this case of PTDU is:

Cost of debt is assumed to be 7%, because the balloon payment will be paid with debt, therefore these installments of debt are also recorded in the cashflow projections with its interests in the year six to ten, because the debt will become installments in five years started in year five. Cost of Equity in the WACC is calculated based on data from Prof. Aswath Damodaran's website. The data are used to calculate cost of equity with CAPM (Capital Asset Pricing Model) formula of Security Market Line, the formula is:

Table I Data from Aswath Damodaran's Website

Market risk premium (Indonesia)	3.60%
average beta for oil field srvcs/equip Company	1.55
risk free interest rate (SBI Rate -1)	5.7%

Cost of equity formula combined with data from Mr. Aswath Damodaran yields a result of cost of equity 11.28%, risk free rate is come from SBI (Suku Bunga Indonesia) rate 6.7% minus 1% to obtain results that is completely free of risk, and cost of debt Chinese amounted 6% is the loan interest rate from the Chinese investor. Back to the WACC formula, cost of equity, cost of debt, cost of debt Chinese are then inputted to the formula with percentage of debt 30.22%, percentage of debt Chinese 63.44%, and percentage of equity 6.34%, the results is 6.64% for the WACC.

With all information explained above conclusion can be made, table shown below are the summary for the IRR, ROI, ROE, and NPV for both lease contracts. WL and DL means Wet Lease and Dry Lease, the number shown beside WL or DL is the possibility of revenue/HP per day. Notes for IRR of DL10, the IRR is in error condition because there is no positive free cash flow in ten years projection.

Table II. Summary of Feasibility Study

Conclusion on Wet Lease Contract		Conclusion on Dry Lease Contract	
IRR	66.36%	IRR	-29.96%
ROI	7.93%	ROI	-4.61%
ROE	124.94%	ROE	-59.99%
PP	Year 4	PP	No PP
NPV	$ 45,367,681.38	NPV	($26,078,986.79)

PP in table of conclusion needs a special treatment to be found, like the previous PP in cashflow projections point of view. Each FCF in the possibilities are multiplied with probabilities, and then PP can be found in the conclusion of FCF. With the figures of decision tree and tables of conclusion above, added by the cashflow projections point of view, all financial analysis that have been done direct the project to choose wet lease as PTDU contract if they want to have a financial engineering and connect PDSI with the Chinese investor, but do the wet lease contract feasible enough? In order to know the answer, it

needs to analyze the results displayed in the decision tree and table of conclusion.

IRR in a positive result means the project yields a positive return; IRR greater than WACC 9.52% means the investment project should be taken because benefit is greater than cost. ROE and ROI also in a good condition because it is positive and ROE exceed cost of equity 11.28% and ROI exceed 7% of loan interest rate. ROE exceed cost of equity means benefit greater than cost, ROI exceed 7% means PTDU is feasible enough to do leveraging in the year six to ten to a third party with 7% loan interest rate. ROI can also be compared with WACC, greater ROI means benefit is greater than cost. PP in year two means FCF will have reached a breakeven in year two. NPV positive means that in the present value the investment with financial engineering by PTDU with Chinese investor and joint operation done by PTDU with PDSI has a positive value which means will add value to PTDU even the value is drawn into present. Conclusion for this feasibility study is PTDU can have a feasible investment project with financial engineering and joint operation in ten years with feasible IRR, ROI, ROE, PP, and NPV.

V. CONCLUSION AND IMPLEMENTATION

Best scenario based on the feasibility study is wet lease contract; the feasibility study shows that wet lease contracts in ten years will yields IRR 66.36, ROI 7.93%, ROE 124.94%, PP in year four, and positive NPV of $45,387,681.38. These results need to be compared: IRR and ROI greater than WACC 6.64% also ROE greater than cost of equity 11.28% mean benefit greater than cost. ROI greater than 6% & 7% loan interest rate means PTDU can leverage in their planned business scheme. NPV and PP don't need to be compared, NPV positive means feasible project and PP in year four means free cashflow will have breakeven in year four. The conclusion is business scheme planned by PTDU is feasible in ten years.

Project Timeline

Below are the table of the project timeline that is ended in year tenth in 2021 starts at 2012, the project timeline is described with five periods of time which are investment agreement with Chinese investors, dealing wet lease contract with PDSI, 5 years investment project, balloon payment, and 5 years loan installments.

Investment agreement with Chinese investor includes the dealing with banks as their intermediaries, both for Chinese investor, which is China Bank and for PTDU which is Bank Syariah Mandiri. After the deal is done, then PTDU is dealing with PDSI also in the same year, 2012, the deal will decide to invest in wet lease contracts so PTDU will have a totally feasible projection in ten years. In the end of year five, there will be a balloon payment that will be made and loan also will be made to a third party and PTDU will continue the oil rig installments to the third party as loan installments in 5 years ahead.

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